WHAT IS CLAIMED IS:

1. A method for determining a parameter for a piezoelectric actuator, the method comprising:

controlling a drive signal applied to the piezoelectric actuator;

operating the piezoelectric actuator;

obtaining a feedback signal from the piezoelectric actuator;

using the feedback signal to determine a parameter of the piezoelectric actuator.

2. The method of claim 1, wherein the step of operating the piezoelectric actuator comprises using the piezoelectric actuator to pump fluid in a pump

3. The method of claim 1, further comprising:

controlling the drive signal so that an ascertainable electrical charge is applied to the piezoelectric actuator;

obtaining a voltage value from the feedback signal;

using the electrical charge and the voltage value from the feedback signal to determine capacitance of the piezoelectric actuator

4. The method of claim 3, further comprising:

deriving the drive signal from a pulse width modulated signal;

controlling pulse widths of the pulse width modulated signal so that the ascertainable electrical charge is applied to the piezoelectric actuator.

5. The method of claim 1, further comprising subsequently using the parameter of the piezoelectric actuator to control the drive signal to the piezoelectric actuator.

6. The method of claim 5, further comprising subsequently using the parameter of the piezoelectric actuator to control pulse widths of a pulse width modulated signal from which the drive signal is derived.

7. The method of claim 1, further comprising:

varying the drive signal through a range of excitation frequencies;

obtaining a voltage value from the feedback signal for each of the excitation frequencies;

determining a resonant frequency of the piezoelectric actuator as corresponding to a frequency in the range that had a minimum voltage value from the feedback signal.

8. The method of claim 7, further comprising determining the resonant frequency of the piezoelectric actuator as corresponding to the frequency in the range that had a minimum peak voltage value from the feedback signal.

9. The method of claim 1, further comprising:

varying the drive signal;

monitoring the feedback signal as the drive signal is varied for an "echo";

determining a resonant frequency of the piezoelectric actuator as an inverse of a period of the echo.

10. The method of claim 9, further comprising varying the drive signal through a step function.

11. A drive circuit which senses a parameter of a piezoelectric actuator operating in a device and which adjusts a drive signal of the piezoelectric actuator in accordance with the parameter.

12. The drive circuit of claim 11, wherein the drive circuit comprises:

a controller which controls a drive signal applied to the piezoelectric actuator;

a feedback monitor which obtains a feedback signal from the piezoelectric actuator while the piezoelectric actuator operates;

a processor which uses the feedback signal to determine the parameter of the piezoelectric actuator.

13. The drive circuit of claim 12, wherein the device is a pump and wherein the piezoelectric actuator operates to pump fluid in the pump.

14. The apparatus of claim 12, wherein the controller controls the drive signal so that an ascertainable electrical charge is applied to the piezoelectric actuator; wherein the feedback monitor obtains a voltage value from the feedback signal; and wherein the processor uses the electrical charge and the voltage value from the feedback signal to determine capacitance of the piezoelectric actuator.

15. The apparatus of claim 14, wherein the drive circuit derives the drive signal from a pulse width modulated signal; and wherein the controller controls pulse widths of the pulse width modulated signal so that the ascertainable electrical charge is applied to the piezoelectric actuator.

16. The apparatus of claim 12, wherein the controller subsequently uses the parameter of the piezoelectric actuator to control the drive signal to the piezoelectric actuator.

17. The apparatus of claim 16, wherein the controller subsequently uses the parameter of the piezoelectric actuator to control pulse widths of a pulse width modulated signal from which the drive signal is derived.

18. The apparatus of claim 12, wherein the controller varies the drive signal through a range of excitation frequencies; and wherein the output monitor obtains a voltage value from the feedback signal for each of the excitation frequencies; and wherein the processor determines a resonant frequency of the piezoelectric actuator as corresponding to a frequency in the range that had a minimum voltage value from the feedback signal.

19. The apparatus of claim 18, wherein the processor determines the resonant frequency of the piezoelectric actuator as corresponding to the frequency in the range that had a minimum peak voltage value from the feedback signal.

20. The apparatus of claim 12, wherein the controller varies the drive signal; wherein the output monitor obtains the feedback signal as the drive signal is varied for an "echo"; and wherein the processor determines a resonant frequency of the piezoelectric actuator as an inverse of a period of the echo.

21. The apparatus of claim 20, wherein the controller varies the drive signal through a step function.

22. The drive circuit of claim 12, wherein the drive circuit comprises:
means for controlling a drive signal applied to the piezoelectric actuator;

means for obtaining a feedback signal from the piezoelectric actuator while the piezoelectric actuator operates;

means for using the feedback signal to determine a parameter of the piezoelectric actuator.

23. The apparatus of claim 22, wherein the means for controlling controls the drive signal so that an ascertainable electrical charge is applied to the piezoelectric actuator; wherein means for obtaining obtains a voltage value from the feedback signal; and wherein the means for using uses the electrical charge and the voltage value from the feedback signal to determine capacitance of the piezoelectric actuator.

24. The apparatus of claim 22, wherein means for using determines the resonant frequency of the piezoelectric actuator as corresponding to the frequency in the range that had a minimum peak voltage value from the feedback signal.

25. The apparatus of claim 22, wherein the means for controlling varies the drive signal; wherein means for obtaining obtains the feedback signal as the drive signal is varied for an "echo"; and wherein the means for using determines a resonant frequency of the piezoelectric actuator as an inverse of a period of the echo.

26. A piezoelectrically-actuated device comprising:

a piezoelectric actuator which is responsive to a drive signal for pumping fluid between the inlet and outlet; and

a drive circuit which senses a parameter of the piezoelectric actuator and which adjusts a drive signal of the piezoelectric actuator in accordance with the parameter.

27. The apparatus of claim 26, wherein the device is a pump having a pump body for at least partially defining a pumping chamber having an inlet and an outlet which communicate with the pumping chamber, and wherein the piezoelectric actuator pumps fluid between the inlet and outlet.

28. The apparatus of claim 26, wherein the drive circuit comprises:

a controller which controls a drive signal applied to the piezoelectric actuator;

a feedback monitor which obtains a feedback signal from the piezoelectric actuator while the piezoelectric actuator operates;

a processor which uses the feedback signal to determine a parameter of the piezoelectric actuator.

29. The apparatus of claim 28, wherein the controller controls the drive signal so that an ascertainable electrical charge is applied to the piezoelectric actuator; wherein the feedback monitor obtains a voltage value from the feedback signal; and wherein the processor uses the electrical charge and the voltage value from the feedback signal to determine capacitance of the piezoelectric actuator.

30. The apparatus of claim 29, wherein the drive circuit derives the drive signal from a pulse width modulated signal; and wherein the controller controls pulse widths of the pulse width modulated signal so that the ascertainable electrical charge is applied to the piezoelectric actuator.

31. The apparatus of claim 28, wherein the controller subsequently uses the parameter of the piezoelectric actuator to control the drive signal to the piezoelectric actuator.

32. The apparatus of claim 31, wherein the controller subsequently uses the parameter of the piezoelectric actuator to control pulse widths of a pulse width modulated signal from which the drive signal is derived.

33. The apparatus of claim 28, wherein the controller varies the drive signal through a range of excitation frequencies; and wherein the output monitor obtains a voltage value from the feedback signal for each of the excitation frequencies; and wherein the processor determines a resonant frequency of the piezoelectric actuator as corresponding to a frequency in the range that had a minimum voltage value from the feedback signal.

34. The apparatus of claim 33, wherein the processor determines the resonant frequency of the piezoelectric actuator as corresponding to the frequency in the range that had a minimum peak voltage value from the feedback signal.

35. The apparatus of claim 28, wherein the controller varies the drive signal; wherein the output monitor obtains the feedback signal as the drive signal is varied for

an "echo"; and wherein the processor determines a resonant frequency of the piezoelectric actuator as an inverse of a period of the echo.

36. The apparatus of claim 35, wherein the controller varies the drive signal through a step function.